

SECTION 16770

ACCESS CONTROL / VIDEO BADGING SYSTEM

PART 1 - GENERAL

1.1 NARRATIVE

- A. Provide access control for doors shown on contract drawings, provide readers and power supplies, and other accessories that will provide the customer with a complete system in accordance with the contract drawings.
- B. The system shall be a modular, networked access control system. The system shall allow for easy expansion and modification of inputs and outputs.
- C. The system control at the central computer location shall be under a single software program control, shall provide full integration of all components, and shall be alterable at any time, depending upon the facility requirements. Reconfiguration shall be accomplished online through system programming, without hardware changes.
- D. The software program shall be a true 32-bit, 3-tier client/server, ODBC compliant application based on Microsoft tools and standards. The software program shall operate in one of the following environments; Windows XP, 2000, or 2003 using the latest service packs.
- E. The database architecture shall utilize either Microsoft SQL Server 2000, SQL Server 7, or MSDE.
- F. The System shall require one master control file server station. Workstations licenses, if required at a later time, shall be able to be purchased and added without the changing of software or physical components of the system.
- G. Capacities in the control system shall be 64 readers, 25,000 card holders, unlimited alarm points, and unlimited relay outputs.
- H. The Glenns Campus shall contain the master control file server station, camera and card printer. The Warsaw Campus shall contain a workstation and camera connected to the network.

1.2 SUBMITTALS

- A. After project award, provide complete CAD generated 1/8" scale drawings detailing installation locations of equipment. Symbols used shall match those shown on the contract drawings.
- B. Provide detailed one-line drawings of systems. Each system drawing shall detail the field wiring necessary and typical wiring termination details for all devices.

1.3 AT PROJECT COMPLETION

- A. Prior to final acceptance, provide drawings showing cable numbers and construction details in accordance with the actual system installation. Revise shop drawings to represent actual installation conditions. Drawings shall be in AutoCAD format.
- B. Prior to final acceptance, provide 6 complete sets of operation and maintenance manuals for the system.

1.4 APPROVALS

- A. The system provided shall be approved for use under the following regulatory standards. Include documentation of these approvals as a part of the submittal process.
 - 1. UL 294 - Access Control System Units.
 - 2. Local and State Building Code.

1.5 CONTRACTOR QUALIFICATIONS

- A. The contractor must have regularly engaged in the furnishing and installation of commercial and industrial low voltage systems and related access control systems for a period of at least the last three (3) years and be able to show evidence of successfully completing at least three (3) projects of similar size and scope.
- B. The Contractor shall hold a Class A Contractors License acceptable as valid in The State of Virginia, and have employees in compliance with the Virginia Department of Criminal Justice Services Sections 9-182 and 9-183.
- C. Technically capable and factory trained service personnel at a contractor-owned service facility within 50 miles radius of the project site to provide routine and emergency service for all products used in the project.

PART 2 - PRODUCTS

2.1 FRONT END SYSTEM

- A. The master file server station shall be IBM-compatible desktop (full-size) personal computers (PCs). Provide server per manufacturer minimum requirements.
- B. Communication Ports
 - 1. The computer shall have two serial communication ports. If additional ports are required, they shall be provided by installing additional compatible multi-port cards.

2.2 CARD ACCESS READER

- A. Card Readers: System card reader specifications shall meet the following options:

The system shall support the use of a uni-directional proximity card reader. The card reader shall have a read range of up to 4 inches. The reader shall be able to be mounted

with its sides against metal door or window frames. The reader shall be powered by +12VDC regulated power. The reader shall meet the following specifications:

1. Electrical: Voltage: +12 VDC nominal voltage (5-16 volts)
Current: Less than 100 mA
2. Environmental: Outdoor Operating Temperature: -25 to 145° F (-31 to 63° C)

The card reader shall be the HID ProxPro for standard applications and the HID Miniprox for exterior door mullion mounts where necessary.

2.3 SYSTEM CONTROLLER

- A. Intelligent Controller: To link the security management system software to all other field hardware components (card reader modules and input and output control modules). The controller shall provide full distributed processing of access control and alarm monitoring operations. Access levels, hardware configurations, and programmed alarm outputs assigned at the main server shall be downloaded to the controller, which shall store the information and function using its high-speed, local 32-bit microprocessor. All access granted/denied decisions shall be made at the controller to provide fast responses to card reader transactions.
 1. Offline Operation: In the event that the controller loses communication with system software, it shall continue to function normally (stand-alone). While in this offline state, the controller shall make access granted/denied decisions and maintain a log of the events that occur. Events shall be stored in local memory and uploaded to the system software after communications are restored.

2.4 READER INTERFACE MODULE

- A. Provide interface modules for each access door shown. Ensure compatibility with readers. Interface door contacts, to this module for door position status.
- B. Single Reader Module: The single reader module shall provide an interface between the controller and the card readers. The single reader module shall operate with any card reader that produces a standard Wiegand (Data 1/Data 0) or Clock and Data communication output. The following requirements shall also apply:
 1. The card reader may be up to 500 feet from the single reader module.
 2. Up to eight (8) unique card formats shall be supported.
 3. The single reader module shall support an integrated card reader.
 4. The single reader module shall support three access modes upon loss of communication with the controller.

These modes shall be:

- a. Locked
- b. Unlocked

c. Facility code

5. Input power shall be 12VDC $\pm$ 15%@ 175 mA with an operating range of 10 VDC to 14VDC

2.5 DOOR LOCK POWER SUPPLY

A. Provide power supply with the following features:

1. 120 VAC input
2. 24 VDC output
3. 2 amp minimum output
4. 6 hour battery backup minimum

2.6 REQUEST TO EXIT MOTION SENSOR

A. Provide request to exit motion sensor above door to interface with controller to provide free egress from the space. Unit shall operate on 12 VDC and provide dry form C relay output to interface module.

2.7 CARD PRINTER

A. Access control system software shall support any printer with industry standard and Microsoft certified Windows 2000/2003/XP drivers. System shall support double sided full color printing, edge to edge printing, high speed printing, holographic overlays, in-line magnetic strips coding, in-line smart card encoding (printer model specific).

2.8 USB IMAGE CAPTURE KIT

A. Provide a high resolution CCD (NTSC or PAL) camera with software zoom capabilities, a fully-synchronized cool white built-in flash, a tripod system with a powered base, TWAIN-compliant software, a USB communication cable and a universal power cable. The camera is USB 2.0-compliant, producing high resolution live video for image capture.

2.9 POWER QUALITY

- A. Where required, provide 120 VAC, 60 Hz power from nearest electrical panel, through a junction box, to the system device.
- B. Test for ground loops that may result from use of different power sources for various components.
- C. Provide point of use UPS power unit for the server sized to support the PC, monitor and attached peripherals, including modems and printers in the event of a building power supply failure of up to 1 hour.

2.10 WIRE

A. Provide wire per manufacturers recommendations.

- B. Provide all wiring from devices at doors to the box above the door in conduit. Wiring from above the door may be run outside of conduit provided that it is properly supported (not by ceiling support beams, trusses, or guy wires) at a minimum of every 4 feet. Examples of proper support includes J-hooks and cable tray. If method is different from these, submit this method to engineer prior to installation for approval.

2.11 IDENTIFICATION AND TAGGING

- A. All cables, wires, wiring forms, terminal blocks, and terminals shall be identified by labels, tags, or other permanent markings. The markings shall clearly indicate the function, source, and destination of all cabling, wiring and terminals. All cables and wires shall be identified, utilizing heat-shrunk, pre-printed, wire markers.
- B. All terminal points shall be appropriately labeled.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION

- A. Install, make fully operational, and test the system as indicated both on the drawings and in this specification.
- B. All necessary back-boxes, pull-boxes, connectors, supports, conduit, cable, and wire shall be furnished and installed to provide a complete and reliable system.
- C. Install conduit, cable, and wire parallel and square with building lines, including raised floor areas. Conduit fill shall not exceed forty (40) percent.

3.2 The access control system shall be installed in strict accordance with manufacturer's recommendations.

3.3 Cables shall be installed completely concealed above ceilings and in walls in accordance with industry standards. The installer must coordinate with the mechanical drawings to compensate for any areas which have plenum ceilings. In any case where there are plenum ceilings, plenum cable will be required.

3.4 System shall be checked-out and tested for proper operation by technicians skilled in access control systems and who are regularly engaged in their installation and commissioning.

3.5 WARRANTY SERVICE

- A. Contractor to warranty the entire system for a minimum of one year, to the extent detailed below.
- B. The contractor shall employ a factory-trained service organization within 100 miles of the job site. This organization shall have a minimum of five (5) years' experience in servicing integrated access control and alarm monitoring systems and equipment.
- C. Fully qualified (factory trained with certification) repair and maintenance personnel shall be expected to be dispatched at all times for any service, maintenance or training call. Untrained or uncertified technicians are unacceptable.

- D. Normal service shall be defined as minor repairs and/or adjustments. Service of this nature shall be provided at no cost to the Owner during normal business hours, which are between 8:00 AM and 5:00 PM, Monday through Friday. For service calls requested by phone before 11:00 AM on a weekday, service shall occur on a same-day basis.
- E. Emergency service shall be required for emergencies defined as critical equipment not being functional, and shall be furnished at no cost to the Owner. Emergency service shall respond within a four (4) hour period, twenty-four (24) hours per day, three hundred and sixty-five (365) days a year.

PART 4 - TRAINING

- 4.1 Provide a minimum of (2) hours training for the Owner. Training sessions to be determined by the owner.

END OF ACCESS CONTROL / VIDEO BADGING SYSTEM